Sub Dirt

Cy

periphery, and being separated by an interstitial liquid;

- a first compound comprising said active agent encapsulated within said vesicles, said active agent being subject to chemical degradation; and
- a second compound encapsulated within said vesicles, said second compound being an inhibitor of degradation of said active agent, and being present within said vesicles in an amount sufficient to inhibit degradation of said active agent.
- 23. (New) The composition according to claim 22, wherein the interstitial liquid is water and the active agent is included in the bi-layers of said vesicles when the active agent is hydrophobic or in the interstitial liquid when the active agent is hydrophilic.
- 24. (New) The composition according to claim 22, wherein said vesicles are of dimensions in the range 0.1 μm to 50 μm .
- 25. (New) The composition according to claim 22, wherein said bi-layers of said vesicles comprise a mixture of a lipophilic surfactant, having a hydrophilic-lipophilic balance (HLB) in the range 3 to 7, and a hydrophilic surfactant, having an HLB in the range 8 to 15.
- 26. (New) The composition according to claim 22, wherein said bi-layers of the vesicles further contain at least one polymer surfactant or a polymer having amphiphilic properties.
 - 27. (New) The composition according to claim 22, wherein

DENNISON, SCHULTZ & DOUGHERTY
612 CRYSTAL SQUARE 4
1745 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VIRGINIA 22202-3417

Cont

said active agent is selected from the group consisting of reducing molecules, oxidizing molecules, and molecules sensitive to hydrolysis.

- 28. (New) The composition according to claim 22, wherein said active agent is a substance sensitive to oxidation and said agent for inhibiting degradation is a substance having reducing properties, having a sequestering effect or which acts on pH when the redox potential depends on pH.
- 29. (New) The composition according to claim 28, wherein said vesicles contain, as the active agent, vitamin C or a derivative thereof, together with at least one agent for reducing oxidation thereof.
- 30. (New) The composition according to claim 22, wherein said agent for avoiding degradation of said active agent has an amphiphilic nature, and plays an active role in the formulation of the bilayers of said vesicles.
- 31. (New) The composition according to claim 22, wherein said agent for stabilizing said active agent comprises a second active agent.
- 32. (New) The composition according to claim 22, wherein said vesicles further comprise at least agent for enhancing leaktightness of the vesicles, said at least one agent being encapsulated within said vesicles or comprising an external coating on said vesicles.

Cont

DENNISON, SCHULTZ & DOUGHERTY
612 CRYSTAL SQUARE 4
1745 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VIRGINIA 22202-3417

33. (New) A method for improving the stability of an encapsulated active agent which is subject to chemical degradation, comprising the steps of

preparing a liquid crystal lamellar phase comprising at least one surfactant, at least one active agent subject to chemical degradation and at least one inhibitor of said chemical degradation; and

subjecting said liquid crystal lamellar phase to shear, to obtain thereby a plurality of multilamellar vesicles in the form of a regular stack of concentric bi-layers comprising at least one surfactant, said bi-layers extending from each vesicle core to periphery, and being separated by an interstitial liquid, said vesicles containing therein said active agent and said inhibitor.

- 34. (New) The method according to claim 33, wherein said shear is homogeneous shear.
 - 35. (New) A stabilized enzyme composition, comprising:

a plurality of multilamellar vesicles in the form of a regular stack of concentric bi-layers comprising at least one surfactant, said bi-layers extending from each vesicle core to periphery, and being separated by an interstitial liquid;

at least one enzyme encapsulated within said vesicles; and

an inhibitor of degradation of said at least one enzyme

Sub.

Court.

present within said vesicles in an amount sufficient to inhibit degradation of said at least one enzyme,

said vesicles being obtained by preparing a preparing a liquid crystal lamellar phase comprising at least one surfactant, at least one active agent subject to chemical degradation and at least one inhibitor of said chemical degradation; and

subjecting said liquid crystal lamellar phase to shear to obtain said vesicles containing said active agent and said inhibitor therein.

- 36. (New) The composition according to claim 35, wherein said agent for avoiding degradation of said enzyme is a known stabilizing agent for stabilizing proteins.
- 37. (New) The composition according to claim 35, wherein said agent for stabilizing said enzyme is selected from the group consisting of surfactants and amphiphilic molecules comprising the following moities:
 - quaternary ammoniums;
 - · amines and ethanolamine;
 - · molecules carrying a phosphate function;
 - · salts and esters of fatty acids;
 - · salts of polyacids;
 - · alcohols;
 - glycerol and esters thereof;

DENNISON, SCHULTZ & DOUGHERTY
612 CRYSTAL SQUARE 4
1745 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VIRGINIA 22202-3417

- · polyols, polyethyleneglycol, polypropyleneglycol; and
- · sugars.
- 38. (New) The composition according to claim 35, wherein said agent for stabilizing said enzyme is a polymer, selected from the group consisting of:
 - · optionally modified polysaccharides;
 - · optionally substituted polyvinylpyrrolidones;
 - · cellulose and cellulose derivatives;
 - polyacrylates;
- polyvinylalcohol and partially hydrolyzed derivatives of polyvinylacetates;
 - · polyacrylamides; and
 - · polyamides.
- 39. (New) The composition according claim 35, wherein said agent for avoiding degradation of said enzyme is a compound having at least one nitrogen-containing function.
- 40. (New) A composition for stabilization of an active agent, comprising:
- a plurality of multilamellar vesicles in the form of a regular stack of concentric bi layers comprising at least one surfactant, said bi-layers extending from each vesicle core to periphery, and being separated by an interstitial liquid;
- a first compound comprising said active agent encapsulated within said vesicles, said active agent being

Concol

subject to chemical degradation; and

a second compound encapsulated within said vesicles, said second compound being an inhibitor of degradation of said active agent, and being present within said vesicles in an amount sufficient to inhibit degradation of said active agent.

41. (New) A method for improving the efficacy of a stabilizing agent for an active agent, comprising the steps of:

preparing a liquid crystal lamellar phase comprising at least one surfactant, at least one active agent subject to chemical degradation and at least one inhibitor of said chemical degradation; and

subjecting said liquid crystal lamellar phase to shear, to obtain thereby a plurality of multilamellar vesicles in the form of a regular stack of concentric bi-layers comprising at least one surfactant, said bi-layers extending from each vesicle core to periphery, and being separated by an interstitial liquid, said vesicles containing therein said active agent and said inhibitor.

LAW GFFICES
DENNISON, SCHULTZ & DOUGHERTY
612 CRYSTAL SQUARE 4
1745 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VIRGINIA 22202-3417